

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (currently amended) Peptide nucleic acid (PNA) comprising 12 to 24 nucleotide bases, said peptide nucleic acid being complementary to the ~~sense or antisense filament~~ strand of human N-myc gene.

2. (currently amended) The peptide nucleic acid (PNA) according to claim 1, in which antisense PNA ~~(5'-TCCACCCAGCGCGTCC-3')~~ SEQ ID NO: 1 is ~~an only a~~ sequence complementary to 5'-UTR region of human N-myc gene.

3. (previously presented) The peptide nucleic acid (PNA) according to claim 1, in which PNA is conjugated with a carrier that can get through the nuclear membrane of target cells expressing N-myc gene.

4. (currently amended) The conjugated peptide nucleic acid (PNA) according to claim 3, in which said carrier is conjugated in 3' ~~position to~~ end of PNA sequence.

5. (currently amended) The peptide nucleic acid (PNA) according to claim 3, in which said carrier is chosen among the following peptide sequences:

~~PKKKRKV~~ SEQ ID NO: 8;

~~RQIKIWFQNR~~ RMKWKK SEQ ID NO: 9;

~~GWT~~ LNSAGYLLGKINLAALAKKIL SEQ ID NO: 10;

~~D)~~ KKWKMPRRNQFWVKVQR SEQ ID NO: 11;

~~GRKKRRQRRRPPQ~~ SEQ ID NO: 12;

~~YGRKKRRQRRR~~ SEQ ID NO: 13;

~~MSVLTPLLLRGLTG~~ SARRLPVPPRAKIHSL SEQ ID NO: 14;

~~KFFKFFKFFK~~ SEQ ID NO: 15;

~~KKKK~~ SEQ ID NO: 16.

6. (currently amended) The peptide nucleic acid (PNA) according to claim 3, in which conjugated PNA is a sense anti-gene PNA ~~or an antisense anti-gene PNA.~~

7. (currently amended) The peptide nucleic acid (PNA) according to claim 6, in which sense anti-gene PNA ~~or antisense anti-gene PNA (5'-ATGCCGGGGCATGATCT-3'~~SEQ ID NO: 3; ~~antisense anti-gene: 5'-AGATCATGCCCCGGGCAT-3')~~ are is complementary to a exon 2 sequence of N-myc gene.

8. (currently amended) The peptide nucleic acid (PNA) according to claim 3, in which sense anti-gene PNA ~~or antisense anti-gene PNA~~ are conjugated in 3' with a nuclear localization signal (NLS) deriving from SV40 virus (peptide sequence ~~PKKKRKV~~SEQ ID NO: 8).

9. (previously presented) A pharmaceutical composition comprising a peptide nucleic acid PNA according to claim 1.

10. (withdrawn) A method to treat genetic diseases comprising the step of using a peptide nucleic acid PNA according to claim 1.

11. (withdrawn) The method according to claim 10, wherein the genetic diseases are tumors associated to the expression of N-MYC protein.

12. (withdrawn) The method according to claim 10, wherein the genetic diseases are tumors selected from the group consisting of neuroblastoma, retinoblastoma, medulloblastoma, glioblastoma, astrocytoma or lung small cell tumor, rhabdomyosarcoma and B-type lymphoblastic acute leukemias.

13. (currently amended) The peptide nucleic acid (PNA) according to claim 4, in which said carrier is chosen among the following peptide sequences:

PKKKRKVSEQ ID NO: 8;

RQIKIWFQNRRMKWKKSEQ ID NO: 9;

GWTLNSAGYLLGKINLAALAKKILSEQ ID NO: 10;

D)-KKWKMPRRNQFW/KVQRSEQ ID NO: 11;

GRKKRRQRRRPPQSEQ ID NO: 12;

YGRKKRRQRRRSEQ ID NO: 13;

MSVLTPLLLRGLTGSARRLPVPRAKIHSLSEQ ID NO: 14;

KFFKFFKFFKSEQ ID NO: 15;

~~KKKK~~SEQ ID NO: 16.

14. (currently amended) The peptide nucleic acid (PNA) according to claim 4, in which conjugated PNA is a sense anti-gene PNA ~~or an antisense anti-gene PNA~~.

15. (currently amended) The peptide nucleic acid (PNA) according to claim 5, in which conjugated PNA is a sense anti-gene PNA ~~or an antisense anti-gene PNA~~.

16. (currently amended) The peptide nucleic acid (PNA) according to claim 14, in which sense anti-gene PNA ~~or antisense anti-gene PNA (5'-ATGCCGGGGCATGATCT-3'~~SEQ ID NO: 3;
~~antisense anti-gene: 5'-AGATCATGCCCCGGCAT-3')~~ ~~are~~ is complementary to a exon 2 sequence of N-myc gene.

17. (currently amended) The peptide nucleic acid (PNA) according to claim 15, in which sense anti-gene PNA ~~or antisense anti-gene PNA (5'-ATGCCGGGGCATGATCT-3'~~SEQ ID NO: 3;
~~antisense anti-gene: 5'-AGATCATGCCCCGGCAT-3')~~ ~~are~~ is complementary to a exon 2 sequence of N-myc gene.